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**EUROPEAN PATENT APPLICATION**

21 Application number: 86304165.3

51 Int. Cl.: **G 06 F 15/21, G 06 F 15/40**

22 Date of filing: 02.06.86

30 Priority: 17.06.85 GB 8515323

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43 Date of publication of application: 30.12.86  
Bulletin 86/52

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84 Designated Contracting States: AT BE CH DE FR GB IT LI LU NL SE

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54 Retail trading systems.

57 A system for retail trading comprises an image storing arrangement storing images of items being traded (e.g. carpets), an image index arrangement connected with the said storage arrangement and containing identifiers for the images therein, an image retrieval arrangement and display means (e.g. a video screen) for displaying retrieved images. A transaction data processing arrangement includes a data input arrangement by which the displayed image identifier is automatically input from the input arrangement. Composite images can be handled.

**EP 0 206 565 A2**

RETAIL TRADING SYSTEMS

This invention relates to retail trading systems.

5           The invention is particularly concerned with  
systems for trading large items that need to be  
delivered to rather than carried away by the customer,  
and items that may be customized at least to some extent  
or fitted. An example is carpets, which are large and  
10       require fitting.

          If a carpet retail outlet is to carry a  
comprehensive inventory of carpets, it must necessarily  
be housed in premises of some size, which, in a prime  
15       shopping area, would involve high rent and rates. It is  
usual therefore to site such premises out of town.  
Nevertheless, there are problems involved with the  
display of many carpets, and customers can find it  
daunting to select from extensive arrays of patterns,  
20       textures and colourways.

          Moreover, the carrying of such a comprehensive  
stock as will at least permit inspection "in the piece"  
is itself an expensive business.

25           Accordingly, there is a tendency to sell carpet  
by sample. The retail premises need carry no or hardly

any stock, and can be accommodated in more compact premises far less expensively, even on prime retail sites.

5                   However, a disadvantage of this is that it is difficult for customers to appreciate, from a small sample, how a carpet will look in their room setting, and how it will relate to their furniture and other effects, for example. Sometimes photographs of a  
10       "typical" room are included in a pattern swatch.

                  Sale by sample involves, moreover, the preparation of a transaction record on the basis of a sample identifier - usually an alphanumeric code. The  
15       identifier is often on an adhesive ticket, and mistakes can arise through loss of or damage to, misreading or wrongly transcribing the identifier.

                  The present invention provides a system by which  
20       these disadvantages can be avoided.

                  The invention comprises a system for retail trading comprising an image storage arrangement storing images of items being traded, an image index arrangement  
25       connected with the said storage arrangement and containing identifiers for the images therein, an image retrieval arrangement and display means for displaying

retrieved images, and a transaction data processing arrangement including a data input arrangement and by which the displayed image identifier is automatically input from the index arrangement.

5

Said image storage arrangement may comprise video disc means and said display means a video screen.

Said input arrangement may comprise an alphanumeric keyboard.

10

Said input arrangement may comprise a special function key operable to put the input arrangement into a transaction specifying mode in which the identifier for the currently displayed image is automatically input from the index arrangement into a transaction record.

15

Said input arrangement may comprise a special function key operable to put the input arrangement into an image retrieval mode.

20

The image index arrangement may contain a categorised image index, and the said retrieval arrangement may then be operable to retrieve images on a category basis, preferably, selectively, images falling into two or more categories. Such retrieved images may be automatically displayable sequentially.

25

The stored images may be composite images comprising a first image component generated from an item being traded and a second image component generated by computer software. The two components of the composite image may be held in different parts of the said image storage arrangement. The second component may comprise colourway information. The first image component may be associated with mask information limiting the displayed area of the second image component to the area not occupied by the first image component.

The system may also comprise colour input means connectable to said image retrieval arrangement and operable to cause said image retrieval arrangement to select only images having colourways related to a colour input via said colour input means.

The system may also be operable to display price and/or availability information with a selected image.

The system may have means for connection to a remote station for transmission of transaction information to said remote station and transmission of price and/or availability information from said station.

5            Figure 1    is a diagrammatic representation of a  
             system for trading e.g. carpets,

Figure 3 is a diagrammatic illustration of a retrieval arrangement operable to retrieve images on a category basis,

20                    **Figure 5**    is a representation of another  
                                 **composite image,**

25           The system for retail trading illustrated in the drawings comprises an image storage arrangement 11 storing images of items being traded such for example as

carpets, furniture, clothing, household textiles,  
homewares and even motor vehicles. The image storage  
arrangement 11 may comprise a video disc arrangement of  
the kind, commercially available, that have controlled  
5 access to images stored thereon so that a single video  
frame can be addressed. A Phillips Laservision VP35  
disc player is suitable.

The storage arrangement can also comprise a  
10 frame store 11a for storing image information in digital  
form for use in image processing applications, referred  
to below.

An image index arrangement 12, connected with  
15 the storage arrangement 11, contains identifiers - for  
example - alphanumeric codes 21 in digital form - in  
random access memory (Figure 2) having common memory  
addresses 23 with the address of the individual images  
24 in the image store 11.

20

A video screen 13 receives video signals from  
the image store 11. Individual images/frames are  
retrieved from the index arrangement 12 by an image  
retrieval arrangement 14 controlled by signals from an  
25 input arrangement 15 comprising a standard alphanumeric  
keyboard which is part of a transaction data processing  
arrangement 16 which also includes a data output  
arrangement 17 which may comprise a printer or a visual

display unit or a modem connecting the arrangement to a remote arrangement adapted to receive the data or simply a storage arrangement connectable to any of the above for subsequent interrogation.

5

Associated with the index arrangement 12 can also be a database 18 accessible in the same way and containing information on price and/or availability of items which images are stored in the image storage arrangement 11. Information from the database 18 can be called up to appear on the video screen 13, either superimposed on the video image or on a separate screen alternatable with the video image. A dedicated or special function key on the keyboard 15 can be used to call for (and cancel) the information display.

Likewise, a special function key on the keyboard 15 is operable to put the input arrangement 16 into a transaction specifying mode in which the identifier for the currently displayed image is automatically input from the index arrangement 12 into the output arrangement 17 as part of a transaction record. The remainder of the record - date, customer's name and address, number of items ordered, price, credit details, discount, method of payment, delivery date and so on - can be entered from the keyboard. More sophisticated programming can permit information from the data base



being available - say price - and operated on by  
standard operators - say price multiplied by (keyboard  
input) number of items can given gross price, operated  
on in turn by a standard discounting arrangement (say 5%  
5 off for cash), or by a standard credit arrangement so as  
to add on a percentage interest and divide the total by  
twelve or twentyfour to give a monthly payment.

Software for this transaction specifying mode of  
10 the input arrangement can be, with considerable user  
advantage, menu driven. The first menu might for  
example contain the following options:-

Display details

15 Place Order

Selecting "Display details" (by whatever means  
is chosen, say by moving, using the keyboard space bar  
or line feed key, a cursor or selection device next to  
20 "Display details" on the screen) throws up on to the  
screen the details of price/availability held in the  
database 18, together with a prompt that might say  
"Press Cancel to exit". Selecting "Place order" can  
call up a series of prompts such as "Enter customer's  
25 name", "Enter customer's address", and "Enter amount  
required", as well as subsidiary menus such as

Payment method:-

Cash

Credit

Cheque

5                      Credit card

which might then have another menu called up, in the event "Credit card" is selected listing accepted cards.

10                    The keyboard 15 also has a special function key putting it into an image selection mode. This may also be menu driven, the menus offering choices depending on the items being traded.

15                    For selling carpets, a typical first menu might comprise a choice of price ranges, followed by a menu offering a choice of plain or patterned, another offering a choice of construction, another, pile type, and another, colour.

20                    The identifier used in the index arrangement 12 may contain coding, as illustrated in Figure 3 categorising the items into the choices indicated above or such other choices as may be appropriate to whatever item is being traded. For example the first symbol in the identifier might indicate a price range, the second whether the carpet is plain (1) or patterned (2), the

25

third the choice of construction (e.g. Wilton, Axminster, tufted, foam-backed, etc) and so on.

5           The keyboard 15 might then, by pressing an appropriate key, be put into an automatic sequencing mode, in which all carpets conforming to the selection are displayed in sequence, a 'pause' key being available for taking a longer look than the automatic sequence allows (which might be just a few seconds for  
10 instance). Or the sequencing might be, at will, effected manually by pressing an "Advance" key. In any event, the selected image is displayed on the video screen 11 and the associated identifier made available to the transaction data processing arrangement 17 as  
15 well as the associated database information being made available both to the screen 13 and the processing arrangement 17.

20           The images stored in the storage arrangement can with advantage show the item against a background - a carpet, for example, can be shown in a room setting, and the same carpet can be shown in different room settings to help the customer choose the ideal carpet, whether as to colourway, or size or nature of pattern, for his  
25 decorating scheme or furniture.

Each image can of course be complete in itself,

so that to cover one carpet in ten different room  
settings, ten image frames are provided in the storage  
arrangement 11. Such ten image frames can be produced  
by imaging an actual carpet in ten different actual  
5 rooms. This will clearly produce visual images of high  
quality, but may be tedious and costly in practice.

The ten images may, on the other hand, be  
composite images, in which, for example, only the carpet  
10 is imaged from an actual carpet, the remainder of the  
image being computer generated, either from scratch or  
from an image of an actual room which has been  
image-processed so that for example the colours of the  
walls, ceiling and woodwork are false, and are different  
15 or in different combinations (or colourways) for each of  
the ten images. Figure 4 is a representation of such a  
composite image where the carpet area 41 of the image,  
which is produced from a video picture of an actual  
carpet, is used together with a setting or background  
20 image component 42. A series of such images is produced  
with different false colour colourways for the  
background image component 42.

Figure 5 shows another composite image in which  
25 an image 51 - shot from actuality - of a chair is shown  
against a room background 52. Figure 6 shows the  
background 52 only, which may be so simple as to be

readily computer-generated without the need to realise  
the same in practice. The chair image 51 is accompanied  
by masking information which cancels the background  
component of the computer generated image, so as not to  
5 interfere with the real image component. In this way,  
differently shaped chairs or other articles can be shown  
against the same background, and the background may  
itself be changed as to colourway (among other things)  
so as to provide a series of composite images. The  
10 colourway information can be part of the computer  
software and provide operators acting on a basic  
computer generated setting design to change the  
colourway. In this way, the provision of a selected  
twenty (say) channels is provided in software instead of  
15 requiring twenty separate video frames to be stored.

This could, alternatively, be a way of  
generating video frames for storage, which would reduce  
computation and hence access time. However, where the  
20 changing information in the screen is background  
information, it may be desirable first to locate the  
item being traded and then to apply software to change  
the background through a sequence of colours.

25 A colour sensor 19 (Figure 1) can be used to  
select retrieved frames to a colour of a sample, perhaps  
of a favourite curtain material or piece of furniture,

proffered for its examination by an intending purchaser. Instead of actually bringing in a sample (which might be difficult in the case of a large item of furniture) a colour matching card can be supplied to be  
5 compared with the original and brought in instead for examination. The colour sensed can then be translated into an appropriate colour code and used instead of a keyboard input to select a colour category.

10           The invention is not to be limited to the precise details described and illustrated. The video screen 13 could, for example, be replaced by any other suitable display arrangement such for example as a slide projector.

CLAIMS

1. A system for retail trading comprising an image storage arrangement storing images of items being  
5 traded, an image index arrangement connected with the said storage arrangement and containing identifiers for the images therein, an image retrieval arrangement and display means for displaying retrieved images, and a transaction data processing arrangement including a data  
10 input arrangement and by which the displayed image identifier is automatically input from the index arrangement.
2. A system according to claim 1, in which said  
15 image storage arrangement comprises video disc means and said display means a video screen.
3. A system according to claim 1 or claim 2, in which said input arrangement comprises an alphanumeric  
20 keyboard.
4. A system according to any one of claims 1 to 3, in which said input arrangement comprises a special function key operable to put the input arrangement into  
25 a transaction specifying mode in which the identifier for the currently displayed image is automatically input from the index arrangement into a transaction record.

5. A system according to any one of claims 1 to 4,  
in which said input arrangement comprises a special  
function key operable to put the input arrangement into  
5 a image retrieval mode.

6. A system according to any one of claims 1 to 5,  
in which the image index arrangement contain a  
categorised image index and the said retrieval  
10 arrangement is operable to retrieve images on a category  
basis.

7. A system according to claim 6, in which said  
image retrieval arrangement is operable to retrieve  
15 images selectively falling into two or more categories.

8. A system according to claim 6 or claim 7, in  
which said image retrieval arrangement is operable  
automatically to retrieve images sequentially.

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9. A system according to any one of claims 1 to 8,  
in which said stored images are composite images  
comprising a first image component generated from an  
item being traded and a second image component generated  
25 by computer software.

10. A system according to claim 9, in which the two  
components of the composite image are held in different



parts of the said image storage arrangement.

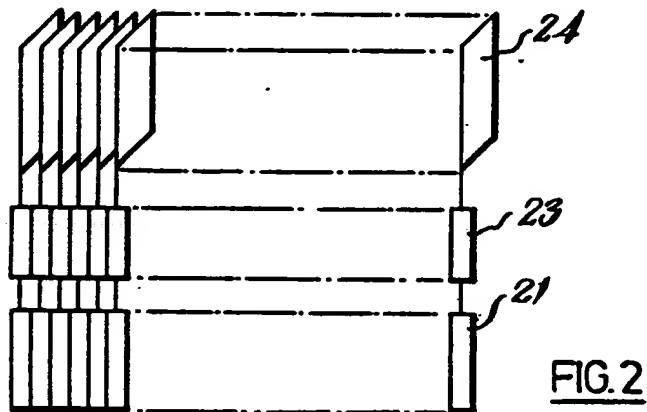
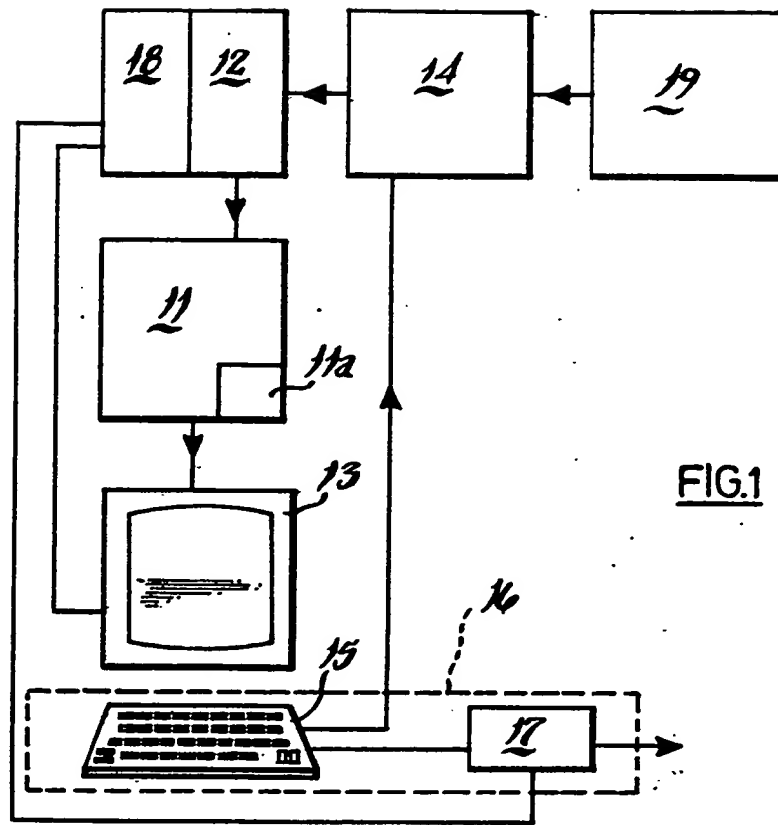
11. A system according to claim 9 or claim 10, in  
which said second component comprises colourway  
5 information.

12. A system according to any one of claims 9 to 11,  
in which said first image component is associated with  
mask information limiting the displayed area of the  
10 second image component to the area not occupied by the  
first image component.

13. A system according to any one of claims 1 to 12,  
comprising colour input means connectable to said image  
15 retrieval arrangement and operable to cause said  
retrieval arrangement to select only images having  
colourways related to a colour input via said colour  
input means.

20 14. A system according to any one of claims 1 to 13,  
operable to display price and/or availability  
information associated with a selected image.

15. A system according to any one of claims 1 to 14,  
25 having means for connection to a remote station for  
transmission of transaction information to said remote  
station and transmission of price and/or availability  
information from said station.





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